

REMARKS

Prior to entry of this amendment, claims 1-6, 8-11, 13, 18 and 20 are currently pending in the subject application. By the instant amendment, claims 1-4 and 9 are amended, and new claims 21-23 are added. No new matter is added. Claims 1, 8, 9, and 13 are independent.

A. Introduction

In the outstanding Office Action Made Final:

- 1) claims 1, 2, 5, 6, 9-11 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,647,132 to Montillo et al. ("the Montillo et al. reference") in view of U.S. Patent No. 7,095,884 to Yamaguchi et al. ("the Yamaguchi et al. reference");
- 2) claims 3 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Montillo et al. reference in view of the Yamaguchi et al. reference and in further view of U.S. Patent No. 6,731,824 to Russell ("the Russell reference"); and
- 3) claims 8, 13 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yamaguchi et al. reference in view of the Montillo et al. reference.

B. Asserted Anticipation Rejections of Claims 1, 2, 5, 6, 9-11 and 18

In the Office Action Made Final, claims 1, 2, 5, 6, 9-11 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Montillo et al. reference in view of the Yamaguchi et al. reference. Applicants respectfully traverse this rejection for at least the reasons set forth below.

Applicants respectfully submit that independent claims 1 and 9 have been amended, as supported at least by paragraphs [0024] and [0043]-[0045] of the original specification as filed and FIG. 3, to recite, in part,

generating an image of a region... including a plurality of *periodic patterns*...

generating frequency data from a plurality of portions of the image by the Fast Fourier Transformation method, *each portion of the plurality of portions of the image displaying segments from all the periodic patterns* in the image;

comparing the frequency data of the plurality of portions
generated by the Fast Fourier Transformation method ... to
determine whether an abnormal frequency peak exists...

Applicants respectfully submit that the Montillo et al. reference and the Yamaguchi et al. reference, whether alone or in combination, fail to teach or even remotely suggest a method and an apparatus as currently recited in claims 1 and 9.

In particular, applicants respectfully point out that the Montillo et al. reference is directed toward recognition of similar patterns in an image¹ and, therefore, uses sub-regions that include only some of the patterns in a corresponding image.² Accordingly, the Montillo et al. reference fails to teach generating frequency data from a plurality of portions of the image, so “*each portion* of the plurality of portions of the image [is] displaying segments from *all the periodic patterns*,” as currently recited in claims 1 and 9. Similarly, applicants respectfully point out that the Yamaguchi et al. reference is directed toward characterizing *edges of individual patterns*,³ and therefore, uses frequency data that reflects only frequency data of one edge of a single pattern.⁴ Accordingly, the Yamaguchi et al. reference fails to teach generating frequency data from a plurality of portions of the image, so “*each portion* of the plurality of portions of the image [is] displaying segments from *all the periodic patterns*,” as currently recited in claims 1 and 9. Therefore, applicants respectfully submit that at least for the reasons discussed above, the Montillo et al. reference and the Yamaguchi et al. reference fail to teach or even remotely suggest each and every element as currently recited in claims 1 and 9. Therefore, claims 1 and 9 are allowable over the cited references. Claims 2, 5, 6, 10, 11, and 18 depend from claims 1 and 9, respectively, and, therefore, are allowable for at least the reasons claims 1 and 9 are allowable. Accordingly, favorable reconsideration and withdrawal of the rejection of claims 1, 2, 5, 6, 9-11, and 18 is respectfully requested.

¹ *The Montillo et al. reference*, col. 2, lines 15-16; col. 4, lines 42-45.

² *Id.*, col. 6, lines 56-67; col. 7, lines 1-3.

³ *The Yamaguchi et al. reference*, col. 7, lines 27-28.

⁴ *Id.*, col. 8, lines 42-44.

C. Asserted Obviousness Rejection of Claims 3 and 4

In the Office Action Made Final, claims 3 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Montillo et al. reference in view of the Yamaguchi et al. reference and in further view of the Russell reference. This rejection is respectfully traversed for at least the reasons set forth below.

Applicants respectfully submit that the Russell reference fails to teach or suggest the elements missing from the combination of the Montillo et al. reference and the Yamaguchi et al. reference as discussed above. Accordingly, claims 3 and 4 are allowable for at least the reasons set forth above regarding claim 1. Accordingly, favorable reconsideration and withdrawal of the rejection of claims 3 and 4 is respectfully requested.

D. Asserted Obviousness Rejection of Claims 8, 13 and 20

In the Office Action Made Final, claims 8, 13 and 20 were rejected under 35 U.S.C. § 103(a) as being over the Yamaguchi et al. reference in view of the Montillo et al. reference. Applicants respectfully traverse this rejection for at least the reasons set forth below.

No Prima Facie Case of Obviousness

Applicants respectfully submit that the Yamaguchi et al. reference and the Montillo et al. reference, whether alone or in any combination, fail to teach or suggest employing a Fast Fourier Transformation (FFT) method or apparatus including, *inter alia*, “measuring a line width of the minute pattern using the magnified image” and “measuring the line width of the minute pattern and generating data having a frequency from a plurality of portions of the image ... simultaneous[ly],” as recited in claims 8 and 13.

With respect to the assertion in the outstanding Office action that the Yamaguchi et al. reference teaches measuring the line width of the minute pattern by measuring roughness,⁵ applicants respectfully disagree. Applicants respectfully note that the Yamaguchi et al.

⁵ See Office action mailed June 11, 2008, page 7.

reference is directed toward determining a *shape of an edge* of a pattern in order to determine roughness of the edge, i.e., *deviation of portions of the edge from a straight line.*⁶

Accordingly, measurement of “roughness” of an edge of a pattern in the Yamaguchi et al. reference refers to expressing a *profile of an edge*, i.e., shape, of a pattern in a mathematical form in order to mathematically determine deviation of the edge from a straight line, e.g., see non-straight edges 18 and 19 in FIG. 5 of the Yamaguchi et al. reference. Therefore, applicants respectfully reiterate that the Yamaguchi et al. reference fails to teach or suggest measuring a line width of a pattern, much less a simultaneous measurement of a line width of a pattern and generation of frequency data from a plurality of portions of an image.

Lack of Motivation to Combine

In addition, applicants respectfully submit that no motivation exists to combine the Yamaguchi et al. reference with the Montillo et al. reference in the manner suggested in the outstanding office action. In particular, in the outstanding Office action, the rejection is based on an assertion that one of ordinary skill in the art would have been motivated to incorporate “frequency from a plurality of portions of an image” and “determining whether the region is normal or abnormal based on a comparison of the plurality of portions”, i.e., features of the Montillo et al. reference, into the Yamaguchi et al. reference because “the method and system as disclosed by the Montillo is automatic and fine tunable.”⁷ Applicants respectfully disagree.

Firstly, even if the system/method of the Montillo et al. reference were, *arguendo*, fully automatic and fine tunable, no relevance exists between the automation/tunability of the Montillo system/method and the features of the Montillo et al. reference suggested to be incorporated into the Yamaguchi et al. reference in the outstanding Office action. Therefore, the mere statement that the motivation to combine the Montillo et al. reference with the

⁶ The Yamaguchi et al. reference, col. 2, lines 12-14; 25-30.

⁷ See Office action mailed June 11, 2008, pages 7-8.

Yamaguchi et al. reference is because “the method and system as disclosed by the Montillo is automatic and fine tunable” is insufficient to establish a proper motivation for one of ordinary skill in the art to combine the cited references.

Secondly, applicants respectfully point out that there is no suggestion or motivation to combine the cited references because the combination of references suggested in the outstanding Office action would change the principle of operation of the prior art invention being modified or render it unsatisfactory for its intended purpose.⁸ In particular, applicants note that the primary reference cited in the outstanding Office action of June 11, 2008, i.e., the Yamaguchi et al. reference, is directed toward generating frequency data from a *single portion of an image* corresponding to an edge of a pattern and comparing the data to a straight line in order to determine roughness of the edge. Applicants further note that modifying the Yamaguchi et al. reference to compare frequency data from a plurality of portions of an image, i.e., as taught by the Montillo et al. reference, would interfere with the comparison between the edge of a pattern and a straight line, thereby causing incorrect calculation of the edge deviation from a straight line. Since combination of the Yamaguchi et al. and Montillo et al. references would require substantial redesign of the method/system of the Yamaguchi et al. reference, applicants respectfully reiterate that one of ordinary skill in the art would not have been motivated to combine the teachings of the Yamaguchi et al. reference with the Montillo et al. reference in the manner used to reject the claims.

In view of the above, applicants respectfully reiterate that the Yamaguchi et al. reference and the Montillo et al. reference, whether alone or in combination, fail to teach or suggest each and every element of claims 8 and 13, and therefore, claims 8 and 13 are allowable. Claims 10, 11, and 20 depend from claim 8 and, therefore, are allowable for at

⁸ MPEP, §2143.01, paragraphs V and VI.

least the reasons claim 8 is allowable. Accordingly, favorable reconsideration and withdrawal of the rejection of claims 8, 10, 11, 13, and 20 is respectfully requested.

E. New Claims 21-23

Claims 21-23 are added by the instant amendment, as supported at least by paragraphs [0024] and [0043]-[0045] of the original specification as filed and by FIGS. 3-4. No new matter is added. Applicants respectfully request entry and examination of claims 21-23.

F. Withdrawal of Finality of Outstanding Office Action

In the Amendment dated May 20, 2008, claims 1 and 9 were amended *solely* to include the limitation of claim 7, which was previously examined, and claims 8 and 13 were amended solely to include the limitations of claim 19, which was previously examined. It is respectfully submitted that the new grounds of rejection of claims 1, 8, 9 and 13, and claims depending therefrom, over the newly cited Yamaguchi et al. reference was not necessitated by the previous amendment. Accordingly, it is respectfully requested that the Finality of the outstanding Office action be withdrawn.

G. Entry of Amendment Requested

Absent the withdrawal of finality requested above, applicants respectfully submit that the pending claims are in condition for allowance, and that the instant amendments overcome the rejections set forth in the outstanding Office action. Accordingly, entry of the above amendment after final is respectfully requested.

H. Conclusion

The above remarks demonstrate the failings of the outstanding rejections, and are sufficient to overcome them. However, while these remarks may refer to particular claim elements, they are not intended to, nor need they, comprehensively address each and every reason for the patentability of the claimed subject matter over the applied art. Accordingly, applicants respectfully submit that the claims are allowable for reasons including, but not

limited to, those set forth above, and patentability of the claims does not depend solely on the particular claim elements discussed above.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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PETITION and
DEPOSIT ACCOUNT CHARGE AUTHORIZATION

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If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.